Abstract

Objective This study assessed lay people and clinicians’ recognition of an at risk mental state for psychosis, their intentions to recommend help and the equivalence of written and videotaped vignettes when detecting the problem.

Methods In an Australian online survey, 52 lay people and 32 psychologists with provisional or full registration were randomly assigned to either a videotaped or written vignette of someone with an at risk mental state. Measures assessed detection and labelling of the mental health problem, and lay people’s intentions to recommend help.

Results Data was analysed with Chi-square Statistics, Fisher’s Exact Tests and Multinomial Logistic Regression. Lay people frequently detected that a mental health problem existed but labelled it incorrectly. All clinicians detected that a mental health problem existed and most labelled it correctly. Lay people’s detection that a mental health problem existed was not associated with vignette type but videotaped vignettes produced significantly more correct labelling. Clinicians had poorer labelling when the vignette was videotaped. Correct labelling was associated with intentions to recommend help to a doctor, psychiatrist and psychologist/counsellor but not with other help sources or with “no help”.

Conclusions Results indicated that if lay people received further education about at risk mental states, they may be more likely to recommend help to certain mental health professionals. They further highlight the need to use multiple vignette methods in mental health literacy research and the importance of simulated learning about at risk mental states in professional training environments. Replication of these results in larger samples is required.

Keywords: At Risk Mental State, Early Psychosis, Mental Health Literacy, Prodrome, Recognition, Vignette.
Introduction

Intervention in the early stages of psychosis is hoped to relieve the burden of illness from affected individuals and their family members or carers. Family members and carers often have little or no formal training to equip them to detect or manage the illness (Department of Health and Aging, 2011). Yet, their timely recognition of the initial prodrome may facilitate appropriate help-seeking, potentially averting morbidity and the public health burden related to psychosis (Yang, Wonpat-Borja, Opler, & Corcoran, 2010). During the initial prodrome, insight into the need for treatment is frequently poor and affected individuals may only seek professional help because of pressure from family and friends (Mintz, Dobson, & Romey, 2003).

The initial at risk mental state (ARMS) or prodrome, typically precedes the onset of active symptoms and can include a variety of predominantly, negative symptoms (e.g. anhedonia, social withdrawal, impaired role functioning) (American Psychiatric Association, 1987; American Psychiatric Association, 2000; Gourzis, Kattrivanou, & Beratis, 2002; Yung et al., 1996). Prospectively identifying someone who will transition to psychosis is difficult for lay people (Reavley & Jorm, 2011) and professionals (Cannon et al., 2008) alike, probably due to the non-specific nature of many of these symptoms. Nevertheless, efforts have been made to identify criteria which might aid early prospective detection of someone who is experiencing ARMS (Yung et al., 1996).

Early intervention for psychosis may be hindered by lay people’s poor mental health literacy regarding psychosis (Cotton, Wright, Harris, Jorm, & McGorry, 2006; Jorm, Christensen, & Griffiths, 2006) and early psychosis (Reavley & Jorm, 2011). Mental health literacy pertains to the public’s knowledge and beliefs about mental health problems and includes their ability to detect symptoms of distress (Jorm, 2000). Regarding ARMS, mental
health literacy is imperative to aid early detection, preventing ongoing deterioration and altered brain structures, as active psychosis sets in (Pantelis et al., 2008).

**Recognition of Psychosis and ARMS**

Two previous national surveys (Jorm et al., 2006; Jorm, Korten, Jacomb, Christensen, et al., 1997) indicated that Australians had a poor, although improving, ability to recognise the symptoms of psychosis. Correct use of the terms schizophrenia/psychosis to label a psychosis vignette increased from 27% in 1995 to 43% in 2003 but the use of the terms mental illness (16%-24%) and depression (26-36%) also increased. In a third Australian national survey (Reavley & Jorm, 2011), participants describing an early schizophrenia vignette frequently mentioned the terms depression (38%), schizophrenia (37%) and mental illness (19%). In contrast, for chronic schizophrenia, the most frequent terms used were mental illness (35%), schizophrenia (32%) and psychological/mental/emotional problems (11%) but there was much lower use of the term depression (6%).

In older Australian research (Jorm, Korten, Jacomb, Rodgers, et al., 1997), rates of recognition for schizophrenia were higher in health professionals. The most common label used by psychiatrists (79%), clinical psychologists (72%) and general practitioners (GP; 78%) was schizophrenia. The second most common label was psychosis (psychiatrists = 14%; clinical psychologists = 15%; and GPs = 12%). More recently, 95% of surveyed GPs, Psychiatrists and Clinical Psychologists labelled early and chronic schizophrenia vignette targets as having psychosis, a psychotic disorder, or schizophrenia. However, no recognition data was available for each vignette separately, across different types of professionals (Morgan, Jorm, & Reavley, 2013). There has been an increased research focus on the symptoms of and treatments for people with ARMS, but with minimal focus on how lay people and professionals’ recognise and label people experiencing such symptoms.
The present study will expand on previous research by assessing how ARMS is recognised and labelled in both lay people and psychologists with provisional or full registration. Given frequent use of the general term “mental illness” in previously mentioned population samples, the current study will assess participants’ detection of a mental health problem before requesting a label for the problem. If participants use such general terms to label the problem, it is uncertain whether they understand the underlying psychotic nature of ARMS. Thus, participants will be asked to label the problem using *DSM-IV-TR* (2000) terminology via a multiple choice question, to indicate their knowledge. This addresses concerns from previous studies where respondents used complex conceptualisations and multiple labels to answer open-ended questions, preventing them from making a specific decision about the nature of the primary presenting problem.

**The Utility of an Accurate Diagnostic Label**

Although there is debate about the risks and benefits of labelling psychosis in its early stages (Bosanac et al., 2010; McGorry & Pelosi, 2009), research in three separate studies of young Australians suggests that correct labelling may lead to more appropriate help-seeking selections (Wright, Jorm, Harris, & McGorry, 2007; Wright, Jorm, & Mackinnon, 2012; Yap, Reavley, & Jorm, 2014). Wright et al. (2007) found that when a schizophrenia vignette target was identified as having another mental health problem or a “mental illness”, appropriate help-seeking recommendations were made less frequently than when a more specific label of psychosis or schizophrenia was used. Similarly, in Wright et al.’s (2012) study, participants believed in the helpfulness of various professional sources of help for themselves when the correct label of schizophrenia/psychosis was used, but when the term “mental illness” was selected, only a psychiatrist was deemed to be helpful. Yap et al., further found evidence that participants who chose an accurate label were more likely to report an intention to seek help from a mental health professional. Thus, accurate labelling may lead a person with ARMS to
receive earlier professional treatment for psychosis, which has the potential to avert deleterious changes to their brain structure and a downward progression to poorer mental health (Pantelis et al., 2008). The current study will investigate this association between intentions to recommend help to a loved one with ARMS, as a function of labelling the problem correctly.

Vignette Methodology

A further consideration in mental health literacy research concerns vignette methodology. Written vignettes may be too prescriptive (Marshall & Dunstan, 2013). The absence of a person precludes the assessment of non-verbal cues, personal appearance and interpersonal interactions, all of which tend to be assessed visually in real life (Link, Yang, Phelan, & Collins, 2004). Whilst written vignettes are frequently administered in the literature, preliminary research with lay people indicated that videotaped vignettes resulted in lower recognition (23%) when labelling depression than written vignettes (68%) (Marshall & Dunstan, 2013).

In GPs, correct recognition of written depression vignettes of the elderly occurred frequently (94%) in one study (Wijeratne & Harris, 2009), yet high rates of misdiagnosis frequently occur in primary care settings, for the same problem (Volkers, Nuyen, Verhaak, & Schellevis, 2004). Quality training of health professionals is important to patient outcomes. Training health professionals using methodology that reflects ‘real world’ practice, assists in identifying those who require further development of competencies (Cross, Hicks, & Barwell, 2001). Assessing health professionals’ competencies using video vignettes may provide a better reflection of ‘real world’ practice than written vignettes. As such, the further evaluation of written and videotaped methods is important in professionals, as well as the lay population.

This study adds to the methodological rigor of Marshall and Dunstan’s (2013) unique comparison of written and videotaped vignettes in several ways. Participants in our study
were randomly assigned to receive different vignettes, whereas Marshall and Dunstan presented four vignettes to all participants in the same order. This reduced the potential for results to be impacted by the order in which vignettes were presented. Also, while Marshall and Dunstan evaluated different content across written and video vignettes, equivalent content for written and video vignettes was created in the present study to ensure that differences in recognition were not due to different symptoms and stories being told.

Aims and Hypotheses

This research aimed to further examine lay people and clinicians’ ability to recognise ARMS, whether accurate labels act as a prompt for intending to recommend more help, as well as to compare written and videotaped vignettes. It was expected that most lay people would recognise that a mental health problem was likely but would describe it as a problem other than psychosis or schizophrenia spectrum disorder. Given their experience with diagnosis, most clinicians were expected to be able to detect a general mental health problem and to label it **correctly**. It was hypothesised that those who labelled the problem **correctly** would have significantly higher intentions to recommend help than those who labelled the problem **incorrectly**. Those who labelled the problem **incorrectly** were expected to have significantly higher intentions to recommend help than those who did not believe that a mental health problem existed. For lay people and clinicians, it was hypothesised that the perceived likelihood of a mental health problem would be significantly greater in written than in videotaped vignettes. It was also anticipated that the problem would be labelled **correctly** significantly more often in written than videotaped vignettes.

Methods

Participants

The sample was part of a larger research project ($N = 309$). The current paper presents findings pertaining to participants who were randomly assigned to ARMS vignettes ($N = 84$).
Clinicians \((n = 32)\) included 7 provisionally-registered psychologists and 25 registered psychologists. The mean age of the lay sample receiving ARMS vignettes was 28.1 years \((SD = 14.0; \text{range} = 18-64)\) and clinicians was 42.6 \((SD = 13.9; \text{range} = 19-68)\). Although it was considered unlikely that a clinician could be 19 years of age, as reported by one participant, this person was maintained in the analysis as they did not change the significance of the results and a reporting/typographical error could not be ruled out. For both lay people and clinicians, there were higher numbers of females \((n = 29\) and \(n = 20\) respectively) than males.

Practicing clinicians labelled their occupation as clinical psychologist \((n = 9)\), clinical psychologist in private practice \((n = 1)\), private practitioner \((n = 2)\), psychologist \((n = 10)\), psychologist in private practice \((n = 1)\), psychologist/teacher \((n = 1)\) and self-employed \((n = 1)\). Provisional psychologists described their occupations as psychologist \((n = 1)\), clinical psychologist in private practice \((n = 1)\), university sessional tutor \((n = 1)\), employment consultant \((n = 1)\). Three did not list their occupation. Occupations of the lay sample \((n = 52)\) spanned many sectors of the economy (e.g. telemarketing, mining, retail, landscape gardening, and managerial). Household income for half of lay participants was low (up to $40,000), 25% were medium ($40,001-80,000), and another 25% were high \((\geq $80,000)\). These group criteria were estimated based on population data available at the time (Australian Bureau of Statistics, 2009). Most lay participants’ highest level of completed education was year 12 \((n = 25)\), followed by diploma \((n = 11)\), certificate \((n = 6)\), bachelor degree \((n = 5)\), postgraduate degree \((n = 3)\), graduate diploma/certificate \((n = 1)\) and year 9 \((n = 1)\). Fifty-eight percent of lay people and 66% of clinicians reported previously seeing a mental health professional for personal problems at some point in their life. A power analysis conducted using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) computer software indicated that for each hypothesis relating to recognition and labelling of ARMS and vignette
type, a sample size of 32 would be required in order to achieve statistical power of 0.8 and detect a large effect size.

**Procedures**

Ethical approval from Griffith University Human Research Ethics Committee was obtained. Vignettes and video scripts were designed in consultation with an experienced clinical psychologist, who assisted with detailing how each symptom might be portrayed. Five experienced clinical psychologists who were not involved in the research project provided expert ratings for the vignettes and video scripts for content and clarity. Videos of a simulated ARMS individual were taped, loaded onto youtube.com and set as *unlisted*, meaning that only people who had been supplied the link, were able to find the video. Then, all materials were piloted by five members of the general public. Videotapes were embedded into the 15 min online survey.

Data collection occurred from 2011-2012. Lay people were recruited using advertisements on public websites (e.g. Gumtree.com, Tradingpost.com.au, Getparticipants.com, and Facebook.com), from university lectures and local letterbox drops. These advertisements alerted potential participants that the research was about mental health literacy in Australia and it may help psychologists to understand if Australians are able to recognise whether a mental health problem exists and what kinds of help they may recommend. The information sheet clearly outlined that the vignettes they were about to see, may or may not depict a person experiencing a mental health problem. Clinicians were recruited from postgraduate lectures and via email addresses obtained online (e.g. yellowpages.com). Unfortunately, no data is available to suggest the acceptance rate from these various methods of recruitment. Participants accessed the survey from a computer of their choice.
To be eligible lay people must never have worked or studied in a mental health area. Clinicians were provisionally or fully registered psychologists. All participants were over 18 years of age and resided in Australia. Participants read the information sheet online before they proceeded consensually to eligibility screening questions. A random number generator allocated all participants to written or video vignettes (see Table 1 for frequencies). After reading/viewing their vignette, participants answered questions about the vignette target and answered demographic questions.

Table 1.

_Frequencies of Clinicians and Lay People who were Randomly Assigned the Different ARMS Vignettes._

<table>
<thead>
<tr>
<th>Vignette</th>
<th>Clinician (n)</th>
<th>Lay Person (n)</th>
<th>VignetteTotal (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written</td>
<td>17 (53.1%)</td>
<td>28 (53.9%)</td>
<td>45 (53.6%)</td>
</tr>
<tr>
<td>Videotaped</td>
<td>15 (46.9%)</td>
<td>24 (46.2%)</td>
<td>39 (46.4%)</td>
</tr>
<tr>
<td>Total</td>
<td>32 (100.0%)</td>
<td>52 (100.0%)</td>
<td>84 (100.0%)</td>
</tr>
</tbody>
</table>

† ARMS = At Risk Mental State.

**Materials**

**Vignettes.** The psychosis vignette used by Whitehorn, Brown, Richard, Rui, & Kopala (2002) was amended to reflect the ARMS (see Appendix 1). The 15 most frequent symptoms in the initial prodrome of psychosis, as identified by Gourzis et al. (2002) were utilised and these aligned well with symptoms identified in a literature review by Yung & Jackson (1999). Symptoms included: marked isolation; marked impairment in role functioning; preoccupation
(with existential ideas); marked lack of initiative, interests and energy; irritability; blunted affect; poverty of speech; impairment in concentration; marked withdrawal; unusual perceptual experiences; ideas of reference; suspiciousness; anxiety; quarrels; sleep disturbance; and depressed mood.

In line with the Personal Assessment and Crisis Evaluation (PACE) clinic intake criteria for a person who is at Ultra High Risk for psychosis (Hughes, 2011), the vignette character, Lizzy’s, psychosis symptoms were at a subthreshold intensity. Her puzzling thoughts did not occur with delusional conviction or all the time. Furthermore, there was evidence of mild circumstantial speech, which was sometimes slowed. There were also plausible explanations for her puzzling perceptual experiences (e.g. hearing someone calling her name). One written and one videotaped vignette, which was 3.5mins long, were created to reflect these symptoms. The storyline and demographic information on characters was identical in both written and video vignettes and the script for the videotaped vignette may be requested from the first author. The written vignette (Flesch-Kincaid Grade Level = 9.1) was a fictionalised version of a discussion between a mother and daughter, not a transcript of the videotape. The teenage daughter, called “Lizzy”, in the videotape was a professional actress but her mother “Eve” was not.

In the videotaped vignette, Lizzy and Eve discuss that she no longer spends time with her friends and family, or playing tennis, and does not “feel like doing much” (marked withdrawal and lack of initiative, interests and energy), instead preferring to stay in her room (marked isolation). They also discuss Lizzy’s trouble concentrating on her university study (impairment in concentration); that her grades are going down (marked impairment in role functioning); her preoccupation with the meaning of human existence (preoccupation with existential ideas); the messages that someone is trying to send her through the TV (ideas of reference); her experience of hearing the phone ring but repeatedly finding that no one had
called and her experience of hearing her name being called but not knowing who it was (unusual perceptual experience); her trouble sleeping (sleep disturbance; Lizzy’s concern that her mum was plotting to get in her room and read her diary (suspiciousness); and her feeling of sadness and fear (anxiety and depressed mood). Throughout the video Lizzy also clearly displayed irritability, blunted affect, poverty of speech, suspiciousness and was quarrelsome with her mother.

**Recognition.** Recognition accuracy was assessed with one item on a 6-point likert scale (Extremely Unlikely-Extremely Likely): How likely do you think it is that (protagonist) is experiencing a mental health problem. Higher values indicated a stronger belief that a mental health problem existed. If the participant answered that a mental health problem was likely (i.e. item responses 4-6 inclusive), they were asked to nominate, in a multiple choice format, what the nature of the mental health problem was. This allowed for two components of recognition (i.e. detection of general distress and labelling), to be assessed separately. The options came from broad categories in the *DSM-IV-TR* (2000) 4th ed. text rev., including: Anxiety disorder; psychotic or schizophrenia spectrum disorder; eating disorder; depression or bipolar disorder; and other. The relatively well-known categories were chosen over open-ended responses to improve coding accuracy.

**Intentions to Recommend Help.** Intentions to recommend help for the vignette target were measured using an adapted version of the General Help-seeking Questionnaire (Wilson, Deane, Ciarrochi, & Rickwood, 2005). The single item from the original scale measuring intentions to seek help from a mental health professional was divided into psychologist/counsellor, psychiatrist, social worker and youth worker to increase specificity. Participants were asked: You have just noticed that someone close to you has been experiencing the same thing as (protagonist). How likely is it that you approach them and recommend they seek the following sources of help? Intentions to recommend help from
formal sources (teacher, counsellor/psychologist, telephone help-line, doctor, social worker, psychiatrist, pastor/priest, youth worker), informal sources (intimate partner, friend, parent, other relative/family member), from no one (reverse scored) and from an “other” source were rated on a 6-point likert-scale from 1 (extremely unlikely) to 6 (extremely likely). Formal help sources were defined as professionals with some training in how to deal with mental health concerns, whereas informal sources were defined as those from a person’s social circle (Rickwood et al., 2005). Higher scores indicated a higher intention to recommend help. The scale had good internal consistency (Chronbach’s alpha = 0.84).

**Statistical Analysis**

The alpha level of .05 was used. For hypotheses relating to recognition, labelling and effect of vignette, non-parametric tests were used because the dependent variable of accuracy was negatively skewed and dependent variable labelling correctness was categorical. A median split of the dependent variable, accuracy, was conducted; participants were given a code of 1 (accurate) if they thought that a mental health problem was somewhat likely, likely, or extremely likely and 2 (inaccurate) if they thought it was somewhat unlikely, unlikely or extremely unlikely. Those who selected the label psychosis/schizophrenia spectrum disorder (coded 1 = correct) were compared with those who selected other labels (coded 2 = incorrect). Six lay participants indicated that a mental health problem was unlikely and were not included in analyses pertaining to labelling. See table 2 for accuracy and labelling frequencies. Fisher’s Exact Test is reported, as recommended by Field (2009), where minimum expected cell frequencies are <5. For hypotheses relating to intentions to recommend help, a series of multinomial logistic regressions were performed. The group using incorrect labels were used as the reference group, allowing us to assess two predictions: first, whether those who used correct labels had higher intentions to recommend help than those who used incorrect labels and second, whether those who believed that no mental
health problem existed had lower intentions to recommend help than those who used incorrect labels. In line with previous research (Wright et al., 2012), we controlled for age and gender, which are known predictors of help-seeking.

Table 2.

Frequencies of Clinicians and Lay People Accurately Recognising a Mental Health Problem and Labelling it as ARMS Across Different Vignettes.

<table>
<thead>
<tr>
<th>Recognition</th>
<th>Clinicians (n = 32)</th>
<th>Lay People (n = 52)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Written (n = 17)</td>
<td>Video (n = 15)</td>
</tr>
<tr>
<td>Accuracy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accurate (n)</td>
<td>17 (100.0%)</td>
<td>15 (100.0%)</td>
</tr>
<tr>
<td>Inaccurate (n)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Labelling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct (n)</td>
<td>16 (94.1%)</td>
<td>9 (60.0%)</td>
</tr>
<tr>
<td>Incorrect (n)</td>
<td>1 (5.9%)</td>
<td>6 (40.0%)</td>
</tr>
</tbody>
</table>

† Accurate responses were those indicating that a mental health problem was Somewhat likely – Extremely Likely; Inaccurate responses were those indicating that a mental health problem was Somewhat Unlikely – Extremely Unlikely; Correct = Psychosis/schizophrenia spectrum disorder; Incorrect = Other mental health problem. ‡ Only those who accurately perceived that a mental health problem was likely, indicated the nature of the problem. § ARMS = At Risk Mental State for Psychosis

Results

Overall Recognition and Labelling of ARMS

One dimensional Chi-square Goodness of Fit Tests were conducted. Significantly more lay people correctly identified that a mental health problem was likely (88.5%) rather
than unlikely in an ARMS vignette $\chi^2(1, N = 52) = 30.8, p < .001$. Furthermore, significantly more lay people (71.7%) incorrectly identified the problem as something other than psychosis/schizophrenia spectrum disorder $\chi^2(1, N = 46) = 8.7, p = .003$. All clinicians (100%) correctly identified that a mental health problem was likely and were significantly more likely to correctly identify the problem as psychosis/schizophrenia spectrum disorder (77.1%) rather than another mental health problem, $\chi^2(1, N = 32) = 10.1, p = .001$. These results supported the study’s hypotheses pertaining to recognition.

**Association of Correct Labelling with Intentions to Recommend Help**

The association between labelling (correct label, incorrect label, and no perceived mental health problem) and intentions to recommend help was examined for lay people using multinomial logistic regressions, holding age and gender constant (Table 3). Contrary to expectations, labelling of the problem was not associated with intentions to recommend help to any informal sources, to an “other” source or to “no one”. Lay people who labelled the problem correctly were significantly more likely to recommend help to a psychiatrist, a doctor, and a counsellor/psychologist. The association between labelling and intentions to recommend help was not present for any other formal help sources.

**Written and Videotaped Vignettes**

A 2 (vignette type: written, videotaped) x 2 (recognition: accurate, inaccurate) two-tailed Fisher’s Exact Test was run for lay people. Contrary to expectations, the association between vignette type and accuracy of recognition was non-significant, $(n = 52) \phi = .03$, indicating that detection of a general mental health problem was not better when written vignettes were received. However, this lack of association may be due to high levels of overall recognition in lay people (88.5% correct identified a general mental health problem). As all clinicians correctly identified that a mental health problem was likely, no association between vignette type and accuracy could be detected.
Table 3

*Multinomial logistic regression outcomes for intentions to recommend help as a function of labelling the problem correctly*

<table>
<thead>
<tr>
<th>Help source</th>
<th>No problem</th>
<th></th>
<th>Accurate label</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>p</td>
<td>95% CI</td>
<td>OR</td>
</tr>
<tr>
<td>Informal sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friend</td>
<td>0.6</td>
<td>0.200</td>
<td>[0.2, 1.3]</td>
<td>0.8</td>
</tr>
<tr>
<td>Intimate partner</td>
<td>0.8</td>
<td>0.492</td>
<td>[0.4, 1.5]</td>
<td>0.9</td>
</tr>
<tr>
<td>Parent</td>
<td>0.9</td>
<td>0.699</td>
<td>[0.4, 1.9]</td>
<td>1.3</td>
</tr>
<tr>
<td>Relative/other family</td>
<td>1.1</td>
<td>0.706</td>
<td>[0.6, 2.3]</td>
<td>1.3</td>
</tr>
<tr>
<td>Formal Sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counsellor/psychologist</td>
<td>0.7</td>
<td>0.375</td>
<td>[0.4, 1.4]</td>
<td>2.2</td>
</tr>
<tr>
<td>Helpline</td>
<td>0.7</td>
<td>0.382</td>
<td>[0.4, 1.4]</td>
<td>1.1</td>
</tr>
<tr>
<td>Doctor</td>
<td>0.9</td>
<td>0.829</td>
<td>[0.5, 1.8]</td>
<td>1.9</td>
</tr>
<tr>
<td>Social worker</td>
<td>0.7</td>
<td>0.297</td>
<td>[0.3, 1.4]</td>
<td>1.4</td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>0.8</td>
<td>0.542</td>
<td>[0.4, 1.5]</td>
<td>2.5</td>
</tr>
<tr>
<td>Priest</td>
<td>1.0</td>
<td>0.947</td>
<td>[0.5, 1.9]</td>
<td>0.9</td>
</tr>
<tr>
<td>Teacher</td>
<td>0.9</td>
<td>0.787</td>
<td>[0.4, 2.1]</td>
<td>1.0</td>
</tr>
<tr>
<td>Youth worker</td>
<td>0.7</td>
<td>0.260</td>
<td>[0.3, 1.4]</td>
<td>1.1</td>
</tr>
<tr>
<td>No help</td>
<td>0.9</td>
<td>0.830</td>
<td>[0.5, 2.4]</td>
<td>1.2</td>
</tr>
<tr>
<td>Other help</td>
<td>0.9</td>
<td>0.862</td>
<td>[0.4, 2.0]</td>
<td>0.9</td>
</tr>
</tbody>
</table>

†Results adjusted for age and gender. ‡ The group who correctly detected a mental health problem but incorrectly labelled it as something other than psychosis/schizophrenia spectrum disorder is the reference group and their results are held constant at 1.0. § *p<.05, **p<.01, ***p<.001. ¶ CI = Confidence Interval.

Next a 2 (labelling: correct, incorrect) x 2 (vignette type: written, videotaped) Pearson’s Chi-Square test was run for lay people. Unexpectedly, the odds of labelling ARMS correctly
were 6.7 times lower when the vignette was written than videotaped, $\chi^2(1, n = 46) = 7.1, p < .008, \phi = .39$, demonstrating a medium effect size. However, as predicted, when a 2
(labelling: correct, incorrect) x 2 (vignette type: written, videotaped) Fisher’s Exact test was performed for clinicians ($n = 32$), the odds ratio indicated that they were 10.7 times more likely to correctly label ARMS when the vignette was written, as opposed to videotaped, $p = .033, \phi = -.41$. This represents a medium effect size.

**Discussion**

The aim of the study was to examine lay people and clinician’s recognition of ARMS using written and videotaped vignettes and the relationship that labelling of the problem has with intentions to recommend help. As expected, most lay people could recognise mental health problems in someone with ARMS but they had difficulty identifying the nature of the problem. This is in line with Reavley and Jorm (2011), who found that far fewer participants mentioned *schizophrenia* to describe an early schizophrenia vignette, than other terms. Thus, while the public might accurately recognise the presence of a problem, their ability to label the problem is not always accurate.

Due to low conversion rates (Cannon et al., 2008) and the potential for stigma associated with labelling, it may not be necessary or even appropriate for lay people to accurately label someone with a psychotic/schizophrenia spectrum disorder (Bosanac, Patton, & Castle, 2010). However, there is preliminary evidence that accurate mental representations of schizophrenia may facilitate more appropriate help-seeking advice (Wright, et al., 2007) and support during a mental health crisis (Wright et al, 2012; Yap et al., 2015). Our data support this hypothesis because lay people who correctly identified the nature of the problem had higher intentions to recommend help to mental health professionals. However, if clients are directed to multiple help sources, it may cause frustration and negative help-seeking
experiences (Anderson, Fuhrer, & Malla, 2010; Shanley, Reid, & Evans, 2008) and poor treatment engagement may result (Compton, 2005). This further highlights the importance of GP and clinician labelling accuracy during this early help-seeking stage. These professionals are ideally situated to detect early psychosis and to assist clients in accessing appropriate care as soon as possible.

In line with expectations, all clinicians in the present study recognised that a mental health problem was likely and the majority labelled the ARMS as psychosis or a schizophrenia spectrum disorder. Improvement in correct labelling is still possible in around one fifth of this population. The percentage of clinicians using the psychosis/schizophrenia spectrum disorder label was slightly lower than psychologists in Jorm, Korten, Jacomb, Rodgers, et al.’s (1997) study, who frequently labelled a schizophrenia vignette as psychosis or schizophrenia. This may be due to differences in symptom severity or because Jorm, Korten, Jacomb, Rodgers, et al. (1997) used written vignettes and not videotaped vignettes. Although there are non-specific symptoms of early psychosis (Correll, Hauser, Auther, & Cornblatt, 2010), potentially confusing the diagnostic process for professionals, vignettes in the present study included indications of pre-psychotic phenomena.

For the lay person sample, labelling of the problem was not associated with intentions to recommend informal help for ARMS. Yet correct labelling was associated with stronger intentions to recommend help to a psychiatrist, psychologist/counsellor, or a doctor, but was not associated with intentions to recommend help to other formal sources, an “other” source in general, or “no one”. Thus, the study’s hypothesis was partially supported. This is encouraging given that psychiatrists, psychologists, counsellors and doctors, compared to other informal sources and other formal help sources (e.g. teachers and priests), have a high degree of specialised training in the treatment of mental health problems. As highlighted by Wright et al. (2012), a correct label might trigger a schema about how to appropriately deal
with an issue such as ARMS. The findings align with outcomes in previous studies (Wright et al., 2007; Wright et al., 2012; Yap et al., 2014) in underscoring the need to educate the public to understand the nature of ARMS using accurate labelling, in order to improve pathways to care.

Contrary to the hypothesis, for lay people, the presence of a general mental health problem was correctly identified across vignette types. However, incorrect labelling occurred more frequently when vignettes were written, contradicting Marshall and Dunstan’s (2013) findings, where depression was labelled correctly more often for written vignettes. This discrepancy may have occurred because the two studies used different research methodologies. Alternatively, differences may be due to the present study investigating recognition in ARMS vignettes, whereas Marshall and Dunstan (2013) used depression vignettes. Lay participants may have been able to detect that the symptoms in the prodrome are different in nature and severity to what they are used to observing in the community, where mild symptoms of anxiety and depression are common. Thus, they may have been triggered to select psychosis/schizophrenia spectrum disorder more easily when the vignette was videotaped. Nevertheless, visual presentations of ARMS led to a more accurate understanding of what the nature of the problem was and given that videotaped vignettes better approximate real life experiences, these results are encouraging.

The association between vignette type and detection of a mental health problem in general could not be investigated for clinicians because of high recognition. However, as hypothesised, many clinicians incorrectly labelled the mental health problem in videotaped vignettes, compared with written vignettes. It may be that written vignettes are too prescriptive (Marshall & Dunstan, 2013), with clinicians easily applying what they have learned in textbooks. However, videotaped vignettes may characterize mental health problems better, through access to interpersonal interactions and non-verbal cues (Link et al.,
Non-verbal, interpersonal clues may be subtle and difficult to detect when compared with the clarity of written vignettes. It is possible that using written vignettes may overstate training psychologists’ diagnostic accuracy and skew results in mental health literacy research.

Both videotaped and written vignettes have been used for the training and assessment of health professionals (Anzia & Manring, 2011; Cross et al., 2001; Flowers, Vanderbush, Hastings, & West, 2010), with the tacit assumption that they are equally valid tools. However, this study’s preliminary findings, which need to be replicated in larger representative samples, indicate that they may not be comparable.

This result highlights the need for simulated learning environments in psychology training programs. It is not always possible to guarantee that all trainees will have the opportunity to work face-to-face with clients experiencing ARMS. Simulated learning environments, such as assessment tasks using actors playing a client experiencing ARMS, provide training in a safe and realistic clinical environment (Weaver et al., 2010). They allow for accurate representations of client presentations, where due to low base rates and the nature placement availability, psychology students in training may not have encountered face-to-face clients with ARMS. In simulated learning environments, trainees may observe the subtle distortions of cognition, behaviour and emotion, representative of ARMS, and can ask additional questions of actors, that they would not have been able to ask when watching a pre-recorded video vignette. It may be that, in the ideal training environment, all three mediums (written vignettes, video vignettes, and simulated learning environments) would be beneficial for enhancing clinicians’ competence. Indeed, such training mediums could be spread across years of training, with written and video vignettes occurring at the undergraduate psychology level, and simulated or (when possible) in-person learning environments occurring at the post-graduate level.
The findings of this research can be evaluated in the context of some concurrent limitations. First, recognition was assessed for the problem of ARMS only. More research is warranted on the impact of videotaped and written vignettes on recognition of conditions other than ARMS. However, the present study provided preliminary evidence that labelling of mental health problems may be affected by the type of vignette that is received. Second, the sample size was low placing limits on generalisability to the overall Australian population and given high levels of prior help-seeking in the lay sample, it is difficult to ascertain whether they participated due to a special interest in mental health issues, causing recognition to be higher. The low sample size may have caused insufficient statistical power to detect a relationship between vignette type and detection of a general mental health problem in lay people, as well as associations between various help-seeking sources and labelling choice. Replication in larger representative sample sizes is necessary. Third, a multiple choice format was used for participants to select what the nature of the problem was, prohibiting them from spontaneously elaborating on their own conceptions of the issue at hand. However, as evidenced in previous research, participants tend to select multiple issues when describing the problem (Jorm et al., 2006; Reavley & Jorm, 2011). There may be some validity in this previous approach, however, as detection of the primary problem was desired in the present study, a different methodology was necessary.

Overall, this study provides a unique insight into the ability of lay people and clinicians to detect and label ARMS. It highlights room for improvement in detecting the nature of the problem and in increasing intentions to recommend help to mental health professionals through innovative education efforts. The results indicate that the influence of vignette methodology should be considered in future mental health literacy research to ensure valid, generalizable outcomes. Furthermore, vignette methodology should be considered in
professional training environments, where the ability of trainees to detect real life mental health problems may be overstated, if written methods are used.

**Key Points:**

1. What is already known about this topic
   
   a. Using open-ended responding in previous research, Australian lay people appear to have a poor but improving ability to accurately label schizophrenia from a vignette. However, little is known about whether they can perceive the more subtle presentation of ARMS. Conversely, mental health professionals appear to have a strong ability to recognise schizophrenia from vignettes. However, little is known about their ability to identify ARMS for psychosis in a vignette.
   
   b. There is emerging evidence that when lay people use accurate diagnostic labels, they are more likely to recommend help or have higher intentions to seek help for schizophrenia. However, the relationship between labelling and intentions to recommend help to a loved one with ARMS needs to be examined because often people in the initial prodrome only seek help due to pressure by family members.
   
   c. More research is needed in order to understand how vignette methodology impacts the recognition of mental health problems. Marshall and Dunstan’s (2009) preliminary work indicates that written vignettes may be too prescriptive and thus, lead to recognition rates being overstated in mental health literacy research.

2. What this topic adds
   
   a. Given the increased emphasis on preventative treatment at early stages of psychosis, further research is warranted into whether lay people and clinicians can detect and label an ARMS and whether correct labelling facilitates intentions to recommend help. People with ARMS cannot access targeted treatment without
first being correctly identified and referred. Thus, the current study addresses this gap in our knowledge.

b. Recognition rates for psychosis and early psychosis have been previously based upon open-ended responding. This provides complex and detailed conceptualisations of how problems are perceived and highlights how people tend to use general terms such as “mental illness”. However, this does not allow us to detect peoples’ perception of the primary presenting problem or their literacy using professional terminology. Requiring that participants use professional terminology gives researchers an indication of whether they understand the underlying psychotic nature of the problem in ARMS. The current research captures people’s detection of general mental health problems and the perceived nature of the primary problem, using broad psychiatric labels.

c. The outcomes of Marshall and Dunstan’s (2009) research into the impact of vignette methodology may have been influenced by order effects and unequal content across videotaped vignettes and written vignettes. These problems are addressed in the present study, where participants were randomised to written and videotaped vignettes and received equivalent content across vignettes. This study highlights how vignettes can affect mental health literacy for both lay people and professionals, and the need to incorporate simulated learning environments into professional training environments.
References


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Appendix 1 - ARMS Vignette

Vignette modified significantly from: Whitehorn, Brown, Richard, Rui, & Kopala (2002)

Lizzy was a popular, athletic young girl. However, not long after her 19th birthday her university grades went down because she was having trouble concentrating on her work. Over the course of a year, Lizzy began to withdraw from her friends and even some family members and spent a lot of time alone in her room. When she did see her loved ones, Lizzy was often irritable and angry and picked fights with them. Lizzy sometimes seemed caught up in her own thoughts, analysing each thought a great deal and she had difficulty switching her attention to other things. These thoughts usually related to philosophical questions about the nature of, and reason for, human existence. Although she realised that it was a bit silly, sometimes Lizzy thought that TV programs were trying to give her answers to these questions. Her mother, Eve, noticed that during conversations, Lizzy’s speech was slow and her emotions seemed flat at times. Lizzy was concerned, because sometimes she thought she heard her name being called but couldn’t find the person who was calling her. She also often heard her mobile phone ring but there was no missed call on her screen. Lizzy felt anxious and upset about these events. She knew that her mum was trying to make sense of her odd behaviour. So, Lizzy often stayed awake at night because she believed that Eve might sneak into her room and read her diary. Eve had never even thought about reading Lizzy’s diary. However, she was becoming more and more worried about Lizzy, who seemed to have lost all motivation. Lizzy also didn’t want to do things like play tennis, which was a hobby she had always enjoyed.